

**MCWP 3-25.5**

# **Direct Air Support Center Handbook**

**U.S. Marine Corps**

**PCN 143 000015 00**

**MCWP 3-25.5**

**Direct Air Support Center Handbook**

## User Suggestion Form

From:

To: Commanding General  
Doctrine Division (C423)  
3300 Russell Road Suite 318A  
Quantico, VA 22134-5021

Subj: RECOMMENDATIONS CONCERNING MCWP 3-25.5,  
*DIRECT AIR SUPPORT CENTER HANDBOOK*

1. In accordance with the Foreword to MCWP 3-25.5, which invites individuals to submit suggestions concerning this MCWP directly to the above addressee, the following unclassified recommendation is forwarded:

<u>Page</u>	<u>Article/Paragraph No.</u>	<u>Line No.</u>	<u>Figure/Table No.</u>
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Nature of Change: ☐ Add ☐ Delete ☐ Change ☐ Correct

2. Proposed new verbatim text: (Verbatim, double-spaced; continue on additional pages as necessary.)

3. Justification/source: (Need not be double-spaced.)

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DEPARTMENT OF THE NAVY  
Headquarters United States Marine Corps  
Washington, DC 20380-1775

16 September 1996

FOREWORD

The Marine air command and control system (MACCS) provides the Marine aviation combat element (ACE) commander with the means to exercise control of those organic and nonorganic aviation assets necessary to support Marine air-ground task force (MAGTF) operations. Fleet Marine Force Manual (FMFM) 5-60, *Control of Aircraft and Missiles*, addresses basic planning considerations for MACCS operations, employment, and inter-operability among MACCS and joint Service agencies.

Marine Corps Warfighting Publication (MCWP) 3-25.5, *Direct Air Support Center Handbook*, complements and expands on the information in FMFM 5-60 by focusing on the details of direct air support center (DASC) operations and the role the DASC plays in integrated MAGTF operations. Designated for MAGTF, naval expeditionary force, and joint force commanders and staffs, MCWP 3-25.5 highlights DASC—

- Organization
- Equipment
- Planning considerations
- Operational fundamentals
- Employment options

By investigating these areas, MCWP 3-25.5 provides the requisite information needed by commanders and staffs to understand and evaluate the operational principles and capabilities of various DASC employment options.

Recommendations for improving this publication are invited from commands as well as directly from individuals. Forward suggestions using the User Suggestion Form format to—

Commanding General  
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Reviewed and approved this date.

BY DIRECTION OF THE COMMANDANT OF THE MARINE  
CORPS

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Commanding General  
Marine Corps Combat Development Command

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# Direct Air Support Center Handbook

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## **Chapter 1**

# **Fundamentals**

The direct air support center (DASC) is the principal Marine air command and control system (MACCS) air control agency responsible for the direction of air operations directly supporting ground forces. It functions in a decentralized mode of operation, but is directly supervised by the Marine tactical air command center (Marine TACC) or the Navy tactical air control center (Navy TACC). During amphibious or expeditionary operations, the DASC is normally the first MACCS agency ashore and usually lands in the same category; i.e., scheduled or on-call wave, as the ground combat element's (GCE's) senior fire support coordination center. The DASC's parent unit is the Marine air support squadron of the Marine air control group.

### **ROLE**

The DASC processes immediate air support requests; coordinates aircraft employment with other supporting arms; manages terminal control assets supporting GCE and combat service support element forces; and controls assigned aircraft, unmanned aerial vehicles, and itinerant aircraft transiting through DASC controlled airspace. The DASC controls and directs air support activities affecting the GCE commander's focus on close operations and those air missions requiring integration with the ground combat forces (close air support, assault support, and designated air reconnaissance). The DASC does not normally control aircraft conducting deep air support (DAS) missions as detailed

coordination of DAS missions are not required with ground forces. However, the DASC will provide battle damage assessments (BDAs) and mission reports (MISREPs) from DAS missions to the GCE's senior fire support coordination center (FSCC) when required.

## **TASKS**

The DASC—

- Receives the air tasking order (ATO) from the TACC (Marine or Navy) and coordinates preplanned direct air support.
- Receives, processes, and coordinates requests for immediate direct air support.
- When delegated authority by the aviation combat element (ACE) commander and in coordination with the GCE's senior FSCC, adjusts preplanned schedules, diverts airborne assets, and launches aircraft as necessary.
- Coordinates the execution of direct air support missions with other supporting arms through the appropriate FSCC and, as required, with the appropriate MACCS agencies.
- Receives and disseminates pertinent tactical information reported by aircraft performing direct air support missions.
- Provides aircraft and air control agencies with advisory and threat information to assist in the safe conduct of flight.
- Monitors, records, and displays information on direct air support missions.

- Maintains friendly and enemy ground situation display necessary to coordinate direct air support operations.
- Provides direct air support aircraft and other MACCS agencies with information concerning the friendly and enemy situation.
- Refers unresolved conflicts in supporting arms to the senior FSCC's fire support coordinator (FSC).

## **DASC ORGANIZATION**

The DASC crew is task-organized to meet operational requirements. Crew members are assigned positions based on their level of qualification and experience. Figure 1-1 shows a notional DASC organization. Appendix A is a crew briefing guide/format.

### **DASC Officer in Charge (OIC)**

The DASC OIC is a commissioned officer not normally assigned to a crew as a watchstander. The DASC OIC is designated by the Marine air support squadron (MASS) commanding officer for a specific operation and is responsible for—

- Embarkation and logistics.
- Overall conduct of DASC operations.
- Configuration of DASC communications.
- Coordinating with joint, multinational, and other external agencies as required.

- Coordinating efforts within the DASC combat operations center.
- Evaluating and supervising training for the DASC crew.

### **DASC Staff Noncommissioned Officer in Charge (SNCOIC)**

The DASC SNCOIC is not normally assigned to a crew as a watchstander. The DASC SNCOIC responsibilities include—

- Assisting the DASC OIC as required.
- Coordinating the DASC's embarkation.
- Evaluating and supervising training for enlisted crew members.

### **Senior Watch Officer (SWO)**

The SWO is normally a senior officer who is not assigned as a crew member, but who is responsible to the commanding officer for—

- Assisting in coordination with joint, multinational, and other external agencies.
- Assisting the senior air director (SAD) by providing briefings to visitors and coordinating the efforts of the DASC combat operations center.
- Evaluating and supervising hands-on training for the DASC crew.

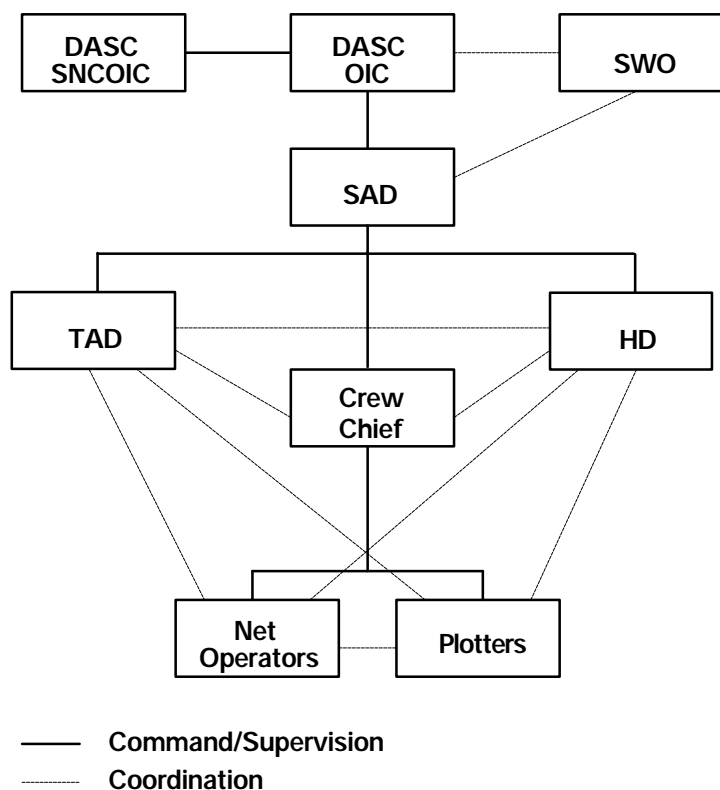


Figure 1-1. Notional DASC Organization.

**Senior Air Director (SAD)**

The SAD is the commissioned officer who is the most qualified DASC watchstander. The SAD is responsible for—

- Overall functioning of the DASC crew on watch.
- Ensuring intelligence information received by the DASC is disseminated to appropriate air control, air defense, and supporting arms elements.
- Receiving, disseminating, and posting all fire support information in the DASC.
- Coordinating with fire support agencies to ensure deconfliction between aircraft and supporting arms is accomplished.
- Coordinating the efforts of DASC liaison teams and airborne extensions of the DASC as required.
- Coordinating with agencies external to DASC.
- Directing DASC communications restoration priorities and the upkeep of the DASC's overall communication status.
- Maintaining a log of significant events that occur during the crew's watch.
- Ensuring the logs of the tactical air director (TAD) and helicopter director (HD) are complete, reviewed for clarity, and properly signed in and out.

## **Crew Chief**

The DASC crew chief, normally a staff noncommissioned officer (SNCO) and the most qualified enlisted watchstander, is responsible to the SAD for—

- Timely and accurate display of all tactical information.
- Coordinating communications restoration and the upkeep of communications status.
- Maintaining a log of significant events that occur during the crew watch and files containing required forms and records.
- Ensuring the net operators' logbooks are completed, checked for clarity, and properly signed in and out.
- Coordinating DASC-internal information flow.
- Supervising the enlisted members of the crew.

## **Tactical Air Director (TAD)**

The TAD is responsible to the SAD for—

- Coordinating and controlling fixed-wing offensive air support (OAS) aircraft, unmanned aerial vehicles (UAVs), and designated assault support, electronic warfare (EW), and air reconnaissance aircraft.
- Coordinating direct air support missions with fire support assets (naval surface fire support [NSFS], artillery, etc.).
- Briefing aircrew on assigned missions, threat information, and fire support coordination measures.



- Reviewing requests for fixed-wing aircraft and recommending the most efficient use of available assets.
- Maintaining status information on all fixed-wing aircraft under the control of the DASC or terminal air controllers.
- Coordinating with the HD to eliminate scheduling or mission assignment conflicts between those missions that involve both fixed- and rotary-wing assets or when more than one mission is conducted in the same area.
- Advising and directing fixed-wing aircraft as to changes in the air defense warning condition and weapons control status.
- Maintaining a log and records as appropriate.
- Coordinating with tactical air coordinators (airborne) (TAC[A]) for the control of assigned aircraft.

### **Helicopter Director (HD)**

The HD is responsible to the SAD for—

- Coordinating and controlling helicopters.
- Coordinating designated rotary-wing missions with fire support assets.
- Briefing aircrew on assigned missions, threat information, and fire support coordination measures.
- Reviewing requests for helicopters and recommending the most efficient use of available rotary-wing assets.
- Maintaining status information on all helicopters under control of the DASC or terminal controllers.

- Coordinating with the TAD to eliminate conflicts between fixed-wing missions and helicopter missions.
- Coordinating with the assault support coordinator (airborne) (ASC[A]) for control of assigned aircraft.
- Advising aircrew of the current air defense warning condition and weapons control status and directing helicopter actions specific to the particular air defense alert condition.
- Coordinating with the TAD on helicopter missions conducting close air support (CAS).
- Maintaining a log and appropriate records.

### **Air Support Net Operators**

Air support net operators are usually enlisted personnel who operate the various radio nets within the DASC. They normally include the tactical air request/helicopter request net operator, the direct air support net operator, the tactical air traffic control net operator (when required), and the tactical air command net operator. Some net operator functions may be combined depending on the DASC's task organization. Air support net operators are specially trained in air control procedures and terminology. An air support net operator's responsibilities include—

- Knowing net names, frequencies, and types of communications equipment being used.
- Knowing the call sign, name, and unit location for stations operating on their assigned communications net(s).
- Knowing the type of information expected to be transmitted and received on the net.

- Understanding the forms/records required to record information from or pass information on the net.
- Understanding the air/ground situation, to include boundaries, control points, and control measures necessary to effectively operate and understand information passed on the net.
- Managing net operations if assigned as a net control station.
- Maintaining a log of significant events that occur during the watch.

### **Air Support Plotters**

Air support plotters are normally enlisted personnel who, under the supervision of the DASC SAD and crew chief, maintain the situation displays within the DASC. They are specially trained in air control procedures, terminology, and symbology. Air support plotters are responsible for—

- Plotting information directed by DASC supervisory personnel.
- Receiving, recording, and disseminating information received over the appropriate net(s).

### **Communications-Electronics (C-E) Maintenance Coordinator**

The C-E maintenance coordinator is assigned to the crew to monitor communications nets, monitor the status of the DASC's cryptographic instruments, and provide liaison with other C-E Marines operating associated C-E equipment.

## **Chapter 2**

# **System Description**

The DASC may be configured to support a variety of tactical situations. It is a radio-intensive air control agency which uses manual information displays, procedural control, and voice communications to direct and coordinate direct air support activities.

### **AN/TSQ-155 IMPROVED DIRECT AIR SUPPORT CENTRAL (IDASC)**

The IDASC shelter (fig. 2-1) is normally used to support Marine expeditionary force (MEF)/Marine expeditionary force (forward) (MEF[Fwd]) operations. The IDASC is constructed from an expandable S-155 shelter. When packed for transportation, the shelter is the same size as a standard International Standards Organization (ISO) shelter. During operations, the IDASC shelter's base is expanded to a 17 feet x 20 feet area. (See table 2-1 for further equipment characteristics.)

### **Operator Positions**

The IDASC shelter contains 14 operator positions arranged in two rows of six positions and one row of two positions. Seventeen communications control panels (CCPs) are located within the IDASC shelter: one at each operator position, two mounted below the front operating desk, and one in the shelter's communications rack. Each CCP contains 24 communication ports which can support a variety of radio or wire configurations; controls for secure/nonsecure voice communications; and controls

for the IDASC's intercommunications station (ICS). Additionally, five telephone lines may be terminated within the IDASC using the four telephone adapter interfaces (TAIs).

### **Data Communications**

The IDASC is both digital communications terminal (DCT) and position location reporting system (PLRS) compatible.

### **Voice Communications**

Radios for voice communications used to support the IDASC are located in the OE-334 (see page 2-4). Cryptographic devices for these radios are located inside the IDASC shelter.

### **Situation Displays**

The IDASC shelter contains a manual situation display of fire support measures and information; friendly unit locations and operational objectives; and information regarding the enemy pertinent to air control, targeting, fire support coordination, etc. Additionally, the IDASC contains two manual displays which are used to chart the progress of the fixed- and rotary-wing portions of the ATO.

**Figure 2-1. AN/TSQ-155 Improved**

**Direct Air Support Central.**

Length	20 feet
Width	8 feet (unexpanded) 17 feet (expanded)
Height	8 feet
Square	160 square feet (unexpanded)
Cube	1,280 cubic feet (unexpanded)
Weight	10,000 pounds (approximately)
Power requirements	110/220 volts, 400 hertz, 20 kilowatts, 3 phase, 4 wire

**Table 2-1. Equipment Characteristics.**  
**ANTENNA COUPLER GROUP (OE-334)**

The OE-334 (fig. 2-2) is a transportable ground-air-ground communications system employed with the IDASC. The OE-334 consists of an S-280 shelter with provisions for six ultrahigh frequency (UHF) frequency modulation (FM) radios; two UHF amplitude modulation (AM)/FM radios; three very high frequency (VHF) AM radios; and four high frequency (HF) radios. The shelter contains ancillary cabling, interfacing panels, power supplies, dedicated antennas, antenna couplers, and coupler controls. The OE-334 may be remotup up to 2 miles from the DASC. (See table 2-2 for further equipment characteristics.)

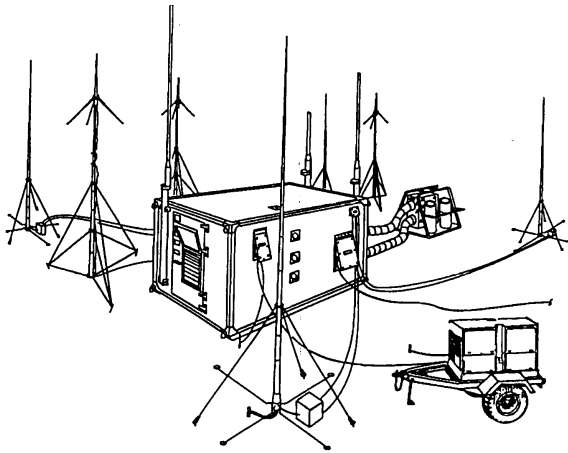


Figure 2-2. OE-334 Antenna Coupler Group.

Length	12 feet 2 inches
Width	7 feet 3 inches
Height	6 feet 11 inches
Square	88.2 square feet
Cube	611 cubic feet
Weight	6,000 pounds (approximately)
Power requirements	120/208 volts, 60/400 hertz,

Table 2-2. Equipment Characteristics.

### **AN/UYQ-3A AIRBORNE-MOBILE DIRECT AIR SUPPORT CENTRAL (DASC)**

The AN/UYQ-3A (fig. 2-3) provides an echelon capability in MEF or MEF(Fwd) operations or as an airborne platform in KC-130 aircraft. In addition to airborne and ground-based operations, the shelter can also be operated from the bed of a stationary truck. The AN/UYQ-3A's employment options provide the MAGTF with flexible direct air support control options. (See table 2-3 for further equipment characteristics.)

### **Operator Positions**

The AN/UYQ-3A shelter contains seven crew positions. Each crew position is equipped with a control panel to access the shelter's radios and ICS system.



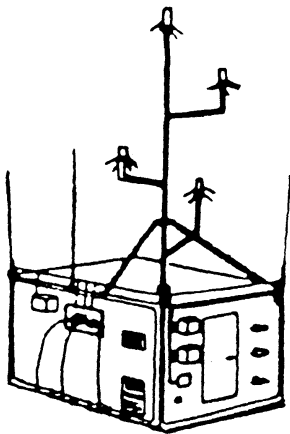


Figure 2-3. AN/UYQ-3A DASC.

Length	12 feet 8 inches
Width	7 feet
Height	7 feet
Square	87.6 square feet
Cube	614 cubic feet
Weight	6,000 pounds (approximately)
Power requirements	115/208 volts, 400 hertz, 15 kilowatts, 3 phase, 4 wire

Table 2-3. Equipment Characteristics.

## **Communications**

The AN/UYQ-3A contains three UHF, one VHF, and two HF systems along with each radio's associated cryptographic device. The AN/UYQ-3A has the additional capability of introducing six externally located radios and six telephone lines into the shelter through the AN/UYQ-3A's communication and telephone ports while in the ground mobile operations mode. The AN/UYQ-3A also has the ability to use external radios when in the airborne operational configuration. However, special arrangements must be made with the supporting KC-130 squadron to externally mount antennas to the host airframe.

## **Situation Displays**

The AN/UYQ-3A has one primary map display for plotting aircraft position, fire support measures, friendly and enemy ground situation, and air control points and measures. Smaller situation displays are available at operator positions for the use of individual operators.

## **AN/MRC-110/138 AND MAN-PORTABLE RADIOS**

During low intensity; i.e., Marine expeditionary unit (MEU) level or echelon operations, the DASC may provide liaison elements to mobile ground forces or may perform limited air support control functions for short durations. In these situations, the DASC typically employs mobile configurations, which operate from MRC vehicles or use man portable radios. When MRC vehicles are used to support DASC, echelon, or liaison functions, a 60-cycle generator is preferred for radio power.

## COMMUNICATIONS

In addition to the radio equipment contained within the AN/UYQ-3A and OE-334, the MASS table of equipment (T/E) provides UHF, VHF, and HF capabilities to the DASC. The DASC is also supported through the MASS's wire, telephonic, and switchboard assets.

## MOBILE ELECTRIC POWER

The MASS provides its own 60 and 400 Hz mobile electric power (MEP) to support DASC operations.

## CAPABILITIES

### Flexibility

The MASS is capable of task-organizing to provide a variety of direct air support control options. Mission flexibility is demonstrated by the DASC's capability to operate from ground sites, aboard stationary trucks, or from an airborne platform.

### Mobility

All MASS equipment is capable of transportation via conventional air, ground, rail, or surface shipping means. Additionally, the MASS T/E provides organic motor transportation equipment that is capable of moving all DASC equipment. DASC equipment required to support a MEF/MEF(Fwd) can be set up and operational approximately 3 hours after it arrives on site. However, materials handling equipment (MHE) support not organic

to the MASS is required to move shelters to or from the truck beds as well as when loading the AN/UYQ-3A into a KC-130 for airborne DASC (DASC[A]) operations.

### **Echelon Capability**

The DASC has the capability of moving to alternate locations with uninterrupted operations. During such movements, the DASC would delegate its functions to an echelon DASC or DASC(A).

## **LIMITATIONS**

### **Procedural Control**

The DASC does not possess radar or digital data link equipment. Therefore, situational awareness depends on pilot/terminal controller reports regarding the aircraft's position.

### **Line of Sight (LOS) Communications**

The DASC is susceptible to UHF and VHF LOS communications limitations. Occurring from curvature of the earth and terrain, these features can preclude effective communications; especially with low flying aircraft.

### **Electronic Signature**

The DASC has a large electronic signature generated by its communications equipment. Effective planning and employment of emission control (EMCON) procedures are paramount to maximizing survivability.

## EQUIPMENT UPGRADES AND REPLACEMENTS

Improvements to the Marine direct air support control capabilities encompass three main areas: the IDASC product improvement program (PIP), the replacement airborne-mobile DASC (RAMDASC), and the common aviation command and control system (CAC<sup>2</sup>S).

### IDASC Product Improvement Program

The IDASC PIP designed to provide a near-term replacement for the AN/TSQ-155 and OE-334 will include an operations suite, communications suite, and various support equipment.

**Operations Suite.** The operations suite (fig. 2-4) will consist of three high mobility downsized (HMD) shelters. The HMD shelters are high mobility multipurpose wheeled vehicle (HMMWV) mounted lightweight multipurpose shelters (LMS) configured to conduct DASC operations. Each shelter will contain five operator workstations, of which four may be remoted up to 50 feet from the operations suite. The HMD shelters will be configured into one operations suite (fig. 2-5), providing integrated communications and an operational system. Each operations suite will contain the software (to include the tactical combat operations [TCO] system) and the hardware (to include map boards, cryptographic devices, and telecommunication devices) necessary to perform the DASC's mission.

**Communications Suite.** The communications suite will include two mobile communications (LMS) shelters. A single shelter will be capable of operating in a stand-alone configuration with the operations suite. Two shelters are networked together with the operations suite to provide the DASC with a full communications

complement. Mobile loaded on a HMMWV, each communica-

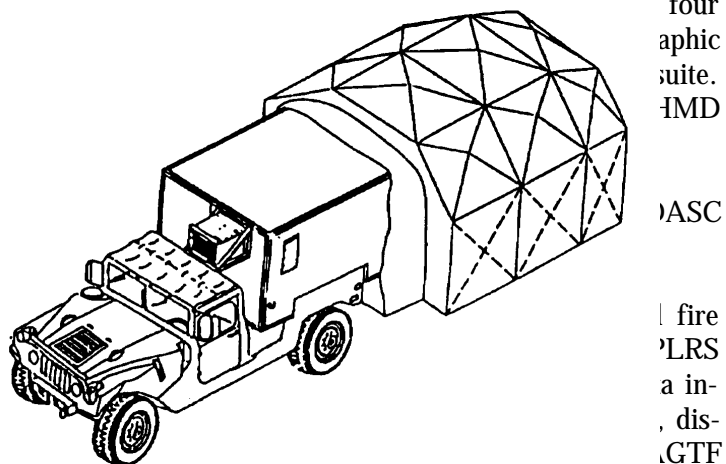


Figure 2-4. HMD Shelter.

units and the DI DS basic user unit (BUU) will allow the DASC

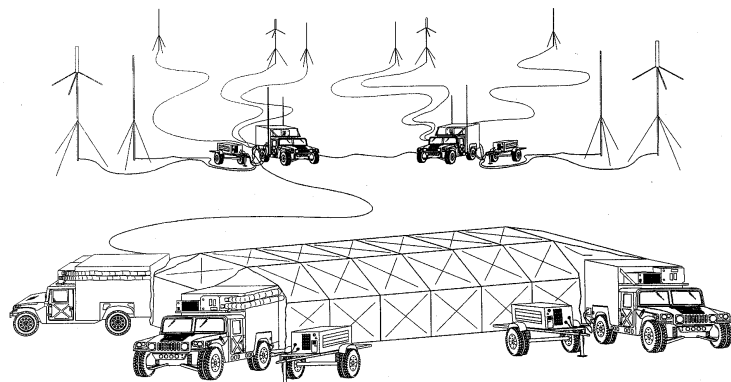


Figure 2-5. Operations Suite.

used in the HMD DASC. Communications capabilities will

include UHF, VHF, HF, and satellite radios capable of secure operations. The RAMDASC will also be DCT, PLRS, and radio facsimile capable.

### **Common Aviation Command and Control System**

Upon the end of their service lives, DASC equipment will be replaced with CAC<sup>2</sup>S and the CAC<sup>2</sup>S communications suite. The CAC<sup>2</sup>S initiative will provide a common equipment suite within the MACCS, thus enhancing interoperability and reducing logistics requirements. CAC<sup>2</sup>S's standardized hardware suite will be equipped with a MACCS-common complement of servers, workstations, processors, etc. CAC<sup>2</sup>S's software will consist of standardized common components with agency specific (TACC, tactical air operations center [TAOC], DASC, etc.) applications. Each system will be modular in design and configured to meet each agencies' mission requirements.

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## Chapter 3

# Planning

Close coordination for the delivery of surface and air delivered weapons is crucial to both the MAGTF's economy of force and the safety of Marine's operating within the delivery area. The DASC's planning efforts significantly contribute to the efficiency by which these assets are employed. MCO 3501.9B, *Marine Corps Combat Readiness Evaluation System (MCCRES)*, outlines specific planning requirements for the DASC. Fleet Marine Force Reference Publication (FMFRP) 5-71, *Aviation Planning Documents*, keys on planning requirements for the ACE, to include direct air support operations. Though the planning of direct air support activities outlined below may occur in sequence, most steps will be conducted concurrently with one another.

### INITIAL PLANNING

After receipt of an initiating directive (in the case of an amphibious operation) or after receiving an operation plan's (OPLAN's) initiating order, the DASC will begin the initial planning phase. Considerations for the initial planning phase include but are not limited to—

- Establishing early liaison with the amphibious task force (ATF) and/or joint force planners and control agencies for all relevant phases of operations.
- Providing air support and aircraft control input to the aviation estimates of supportability for all operations assigned, and

identifying any limitations or problem areas. The input to the aviation estimates of supportability should summarize significant aviation aspects of the situation as they might influence any course of action (COA) proposals and evaluate and determine how aviation units can best be employed to support the contemplated landing force (LF) COAs. The aviation estimates of supportability's end product will include a recommended COA for the ACE commander. At a minimum, aviation estimates of supportability will include—

- Which contemplated COA can best be supported by the ACE.
- Salient disadvantages of less desirable COAs.
- Significant aviation (to include air command and control [C<sup>2</sup>]) limitations and problems of a logistical nature.
- Measures that can be taken to resolve aviation problems to include requesting additional theater assets.
- Coordinating all relevant communication requirements for subordinate, adjacent, and higher level circuits with the ACE/MAGTF communications planners. These requirements should include identification of desired connectivity, encryption hardware and software, any communications requirements that are beyond the capabilities (or assets) of the MASS, and authentication materials.
- Establishing coordination with the local regional automated services center (RASC).
- Reviewing the initial force list and/or Marine air control group (MACG)/ACE planning guidance to determine the role of UAVs in the operation.

- Recommending to the MACG/ACE planning staff required UAV mission data and format as it should appear on the ATO.
- Ensuring air support requirements are coordinated with planned air defense measures.

### **INTELLIGENCE PLANNING**

The DASC will require updated and complete intelligence information to carry out its support efforts. The DASC's intelligence planning is primarily concerned with the enemy orders of battle (EOBs), capabilities, and tactics. Intelligence planning considerations will include—

- Receiving and disseminating to DASC personnel information from the preliminary and detailed aviation intelligence estimates. This includes submitting requests for information (RFIs) for those DASC particular concerns that may include: enemy capabilities, off-road trafficability, terrain limitations not delineated on maps, electronic order of battle, weather projections, and any other information that may not have been addressed in the operations plan.
- Developing and forwarding RFIs to higher headquarters. The RFIs will take the form of simple, concise requests consisting of three parts: positive requests, qualifying questions and statements, and prioritization of submitted requests.
- Recording information in a journal/workbook for ease of study and comparison, and sending that information, when appropriate, to higher, adjacent, and subordinate units.

- Obtaining and maintaining a complete EOB which includes information on missiles, aviation assets, EW, ground forces, and space assets.
- Determining and interpreting information of significance to the DASC and forming logical conclusions which can serve as the basis for determining the effects on air support operations.
- Establishing intelligence collection and dissemination procedures to include: timeliness, usability of form, pertinence, and security of gathered information.
- Preparation of a detailed rear area threat assessment for the MASS detachment.

### **SITE SELECTION PLANNING**

The site selection planning process begins once the MAGTF's area of operations (AO) is identified. During the site selection process, planners must ensure that adequate space for site establishment is identified; sufficient access to the site is afforded; and that communications connectivity can be maintained with other MACCS agencies, elements of the GCE, combat service support element (CSSE), forward operating bases (FOBs), and airborne aircraft. Site selection planning concerns include—

- Conducting coordination with the GCE's senior FSCC to ensure that DASC siting considerations are included in the FSCC's site planning.
- Using computer analysis and map surveys to determine suitable DASC/FSCC sites. Computer software programs, such as system, planning, engineering evaluation device (SPEED),

can be used with map surveys to provide empirical data and analysis on the following key points:

- Communications connectivity
- Cover and concealment
- Trafficability
- Sufficient space for the DASC's tactical deployment (dispersion)
- Communications electronic protection (EP) supportability
- Identifying the alternate operational sites above.
- Determining the required DASC equipment based on the MAGTF scheme of maneuver and projected locations of MACCS/terminal control agencies within the AO.
- Establishing priorities for emplacement of equipment.
- Conducting a physical reconnaissance of the site with FSCC personnel.
- Determining and recommending to the ACE/MAGTF communications planners any requirements for ground radio relay/retransmission sites required to support DASC operations.
- Determining communication capabilities from prospective sites based on Electromagnetic Compatibility Analysis Center (ECAC) or other radio-frequency (RF) studies.

## AIR SUPPORT SPECIFIC PLANNING

The ACE staff will normally augment several air support specialists to assist in the preparation of the MAGTF operations order. Crucial decisions, to include ACE apportionment of assets for direct air support should be addressed during this planning phase. Air support planning efforts should include—

- Providing input to the preparation of the ACE/MAGTF communications plan to include DASC communications required for effective coordination and control of all direct support aircraft; encryption hardware and software; and authentication materials.
- Recommending air support control measures (control points, return to force [RTF] procedures, etc.) to the ACE/MAGTF planning staff.
- Remaining cognizant of all planning and coordination involved in establishing airspace management/control procedures.
- Planning for the DASC's tactical redeployment to alternate sites, along with the FSCC, in response to changes in the MAGTF's requirements, the threat, or the ground force positions.
- Recommending UAV control measures for deconfliction/integration with direct air support aircraft and other supporting arms.
- Determining communication paths and radio in/out (RIO) procedures required with the UAV unit's ground control station (GCS).

- Determining the requirement to employ airborne extensions to maintain communications connectivity and air control with direct air support aircraft and other air control agencies as appropriate.

## **ELECTRONIC WARFARE PLANNING**

In situations where the enemy has a known EW and electronics intelligence (ELINT) collection capability, the unit EW officer will assume an active role in the DASC's EW planning. EW planning considerations involve—

- Obtaining from the ACE/MAGTF EW officer a detailed intelligence assessment of the enemy's electronic order of battle.
- Developing an EMCON plan for the DASC that supports the ACE/MAGTF EMCON plan. Factors for DASC personnel to consider are—
  - Minimum communication (MINCOMM)/no communication (NOCOMM) procedures.
  - Use of brevity codes and authentication tables.
  - Use of communications security (COMSEC) materials.
  - Delegation of EMCON control authority.
  - Signals security (SIGSEC).
  - Circuit discipline.
- Determining the locations of radios and radio antenna farms after considering the signals intelligence (SIGINT)/EW threat.

- Planning for the maximum use of secure communications.
- Providing input to the MAGTF command and control warfare (C<sup>2</sup>W) plan.
- Ensuring that planners, operators, and users of electronic equipment thoroughly understand the EW threat and the EMCON/EP techniques used to counter the threat.

### **EXTERNAL SUPPORT PLANNING**

Even though DASC equipment is designed to be moved on the MASS's organic transportation assets, the MASS does not possess the MHE or enough transportation assets to expeditiously move the entire unit. Mobile loading DASC equipment may further limit the MASS's organic transportability. Planners should consider the DASC's method of employment and necessity for mobility when determining the support required from external units. External support planning considerations for the DASC will also include distribution points for food; water; batteries; and petroleum, oils, and lubricants. The DASC may also require externally sourced personnel to augment their site security.



## **Chapter 4**

# **Operations**

The DASC responds to ground forces' requirements for direct air support by processing immediate air support requests, coordinating aircraft employment with other supporting arms through the GCE's senior FSCC, and directing designated air operations. The DASC's role in direct air support thus provides a crucial linkage between the GCE and the ACE.

### **EMPLOYMENT OPTIONS**

The MASS commander has several DASC employment options to support the MAGTF.

#### **DASC**

As the MAGTF's primary direct air support control facility, this configuration provides the operational capability to perform all DASC-related functions and is normally employed with MEF (Fwd) or larger MAGTFs. The DASC, when practical, normally collocates with the GCE's senior FSCC. Optimally, this collocation is by physical proximity. However, an electronic link may be an acceptable alternative in situations where DASC siting requirements differ from the FSCC's; i.e., necessity for line of sight (LOS) communications with aircraft, tactical and/or geographical considerations, and communications connectivity with other MACCS agencies. The DASC's equipment may include an AN/TSQ-155 IDASC shelter and/or an AN/UYQ-3A DASC shelter, OE-334, and associated support equipment.

### **Airborne DASC (DASC[A])**

Consisting of an AN/UYQ-3A employed in a KC-130 aircraft, the DASC(A) can be employed as an independent air control agency, but normally serves as an airborne extension of the DASC. Air superiority is essential in the area where a DASC(A) is to be employed. The operational period for a DASC(A) is limited by the host aircraft's time on station capabilities. Normally used during MEF(Fwd) and larger MAGTF operations, the DASC(A) is extremely flexible and adaptable to a variety of operational situations including—

- Extended overland displacement.
- Supplementing the DASC's communications coverage while it displaces or when communications become degraded.
- Operations in geographic areas where terrain adversely affects the DASC's communications.
- Amphibious operations to aid in phasing direct air support control functions from the Navy tactical air control center (TACC) to the DASC.
- Split sector operations while control is afloat or ashore.
- Other missions as directed by the MAGTF commander, ACE commander, or MASS commanding officer.

### **Air Support Element (ASE)**

The ASE is a task-organized direct air support element normally employed with a MEU. The ASE is not a DASC, but is capable of assisting in the control of airborne assets for a limited period of time in a limited area. The ASE performs this function for a

designated sector(s); usually the landward sector of an amphibious objective area (AOA). The ASE should be considered a landward extension of the Navy TACC/helicopter direction center (HDC). The ASE works with the battalion tactical air control party (TACP) to effect coordination of MEU ACE airborne assets.

### **Air Support Liaison Team (ASLT)**

The ASLT is task-organized by the MASS to maintain liaison between the DASC and the FSCC, normally in situations where the DASC cannot remain physically collocated with the senior FSCC or when liaison is required between the DASC and subordinate FSCCs. Because the MASS T/O lists only one liaison officer, the additional personnel required to man ASLTs will proportionately reduce the DASC's overall manning capabilities.

**Role.** The ASLT is not a DASC, but may provide or augment an echelon capability during displacement. The ASLT serves to maintain the "face-to-face" coordination between the DASC and FSCC vital for the effective coordination and integration of DAS missions with the employment of other supporting arms.

**Composition.** The number, size, and composition of ASLTs are determined by the MASS commanding officer based on the experience of FSCC personnel, terrain, operational tempo, and the mobility of the GCE. An ASLT typically varies in size from a single Marine with a man-portable radio or field telephone to a number of Marines operating from MRC vehicles.

**Echelon Operations.** The personnel needed to man ASLTs will generally reduce the echelon capability of the DASC. During echelon operations, ASLT personnel maintain communications and coordination with the DASC, advise the FSCC personnel on

the status of direct air support missions, and provide supporting Stinger units with friendly air traffic information. Depending on the amount of movement or echeloning required of the DASC, the ASLT may augment the DASC's echelon capability. In cases where an ASLT is increased in size to perform DASC echelon functions, the ASLT will relinquish its title and functions.

## **CONCEPT OF EMPLOYMENT**

While a particular DASC configuration may be identified with a MEF, MEF(Fwd), or MEU, the specific requirements for a given situation will dictate the actual configuration needed for mission success. One DASC is capable of providing direct air support control functions to a single division in support of the division's main effort. The DASC's support of multiple divisions requires employment of assets beyond those normally found in a single MASS.

### **MEF/MEF(Forward)**

Coordination and control of direct air support functions for MEF operations require a substantial DASC capability based on the number of TACPs that will request air support, as well as the number of aircraft anticipated to provide the GCE with direct air support. During MEF operations, the DASC is generally collocated with the division FSCC. In MEF(Fwd) operations involving one or two regiments, the DASC will normally collocate with the FSCC responsible for coordinating all GCE supporting arms. In either case, the DASC must maintain an echelon capability to provide continuous air control and communications during movement periods. An ASLT may be used in situations where the DASC cannot remain physically collocated with the

senior FSCC. A DASC(A) may also be employed to assist the DASC in its functioning or to augment their communications.

## **MEU**

The MEU ACE contains task-organized air C<sup>2</sup> agencies and equipment under the cognizance of the MACG detachment. The MASS normally deploys an ASE as part of the MACG detachment. The ASE(s) assigned to a MEU are task-organized by the MEU command element.

## **INTERAGENCY RELATIONSHIPS**

### **DASC/TACC**

The DASC is subordinate to the Marine TACC, tactical air direction center (TADC), or Navy TACC depending on command relationships and the phase of passing air C<sup>2</sup> functions ashore during amphibious operations. Whereas the Marine TACC/Navy TACC provides centralized command of all air operations within a designated AO or amphibious objective area (AOA), the DASC provides for decentralized control of direct air support missions within their designated area.

**OAS.** Ideally, the ACE commander will decentralize the control of OAS by delegating authority to the MASS commander to divert airborne assets to missions with higher priority as coordinated/approved by the senior FSCC and to launch on-call CAS aircraft. If such authority is delegated to the MASS commander, he will normally delegate the same authority to the DASC's SADs. This serves to ensure minimum response time to the MAGTF's direct air support requirements. The Marine TACC, TADC, or Navy TACC responds to the DASC's

requests to fill the GCE's needs for additional direct air support. The DASC keeps the Marine TACC, TADC, or Navy TACC informed on the progress of direct air support missions, the effectiveness of the OAS effort, and the friendly and enemy air/ground situation. The DASC passes all combat information received from other sources to the Marine TACC, TADC, or Navy TACC and other agencies/aircrew as appropriate.

**Assault Support.** Ideally, the ACE commander will decentralize the control of assault support missions and allow the DASC to divert and/or launch on-call assault support aircraft to ensure minimum response time to requests for assault support. Control of assault support aircraft outside of the DASC controlled airspace will be performed by the appropriate MACCS agency. In order to maintain the flexibility to immediately divert airborne assets, assault support aircraft will normally maintain some communication with a MACCS element. In the conduct of assault support, the Marine TACC, TADC, or Navy TACC should assume a supervisory mode and respond to the DASC when additional assets are required to continue the assault support effort. In turn, the DASC must provide their senior agency with timely information regarding the status of assault support missions and the overall effectiveness of the assault support effort.

**Electronic Warfare.** The DASC will coordinate direct support EW missions with the GCE's senior FSCC to ensure that airborne EW is effectively integrated as a combined arm. Coordination of airborne EW efforts includes but is not limited to electronic surveillance, targeting, jamming, electronic BDA, and offensive anti-air warfare (OAAW). The DASC will ensure, as required, necessary coordination is made to protect friendly ground units and equipment from the effects of electronic attack (EA) and antiradiation missile attack. Requests for EW are submitted by the appropriate FSCC either to the DASC for

immediate requests or to the Marine TACC/Navy TACC for pre-planned requests.

**Air Reconnaissance.** The DASC does not normally coordinate the MAGTF's long range air reconnaissance efforts. However, the DASC will coordinate with aircrews and the UAV GCS to conduct air reconnaissance in direct support of the GCE. The DASC will provide verbal inflight and MISREP information that will be passed on to the Marine TACC/Navy TACC and the GCE's senior FSCC. Hard copy imagery is requested through G/S-2 channels. Requests for air reconnaissance missions are submitted by the G/S-2 to the DASC for immediate requests or to the Marine TACC/Navy TACC for preplanned requests.

### **DASC/FSCC**

The FSCC is the final arbitrator of all supporting arms integration conflicts and will make decisions in all cases of conflicting requests for fire support assets. The FSCC provides the DASC with updates to unit boundaries and fire support coordination measures, friendly and enemy unit positions, pertinent intelligence data, and other prearranged data items as they are received at the FSCC. The FSCC also provides the DASC with information on gun positions; gun-target lines; and gun trajectories in the vicinity of aircraft flight routes. The DASC is responsible to the FSCC to provide timely information on—

- Predicted flight paths for aircraft under the DASC's control.
- BDAs.
- Status of outstanding requests.
- Pertinent intelligence data.

- Delays or cancellations to the ATO.
- Status of ongoing missions.
- Other prearranged data items.

The FSCC is responsible to the DASC to provide timely information on—

- Location of friendly forces and artillery.
- Location and capabilities of enemy forces.
- TACP locations.
- Target lists.
- Overlays of the GCE scheme of maneuver.
- Priority of fires/effort.
- Approval of joint tactical air strike requests (JTARs)/assault support requests (ASRs).
- Plans to displace/echelon.
- 

**Air Support, Reconnaissance, and EW Requests.** Immediate air support requests sent directly from the requesting unit to the DASC are approved by the FSCC. Various forms for requesting air support include the—

- JTAR for immediate OAS (CAS; DAS).
- ASR for immediate assault support.



- Joint tactical electronic warfare request (JTEWR) for airborne EW.
- Joint tactical air reconnaissance and surveillance (JTAR/S) for air reconnaissance.

**Note:** The joint tactical airlift request may be required in joint operations instead of the ASR to request assault support. Immediate air evacuation, to include medical evacuation (MEDEVAC), is requested using the ASR.

Upon receiving the request, the DASC will clarify any needed portions and assign a request number for reference purposes. For JTARs, JTAR/Ss, and JTEWRs, the request number is based on the date the JTAR was received followed by a consecutive odd number; e.g., 11-1, 11-3, 11-5. For ASRs, the request number is based on the date it was received followed by a consecutive even number; e.g., 11-2, 11-4, or 11-6. MEDEVAC request numbers are based on the date the request was received and a consecutive letter of the alphabet; e.g., 11-A, 11-B, or 11-C. The senior FSCC monitoring the tactical air request/helicopter request net may approve, disapprove, or modify the request. Normally, the senior FSCC approves the request by remaining silent ("SILENCE IS CONSENT" unless previous commander's guidance requires positive approval). However, for purposes of confirmation or when doubt concerning the validity of the request exists, the DASC's SAD should coordinate with the FSCC's air officer for clarification of the request.

**Diverting Aircraft.** The ACE commander may delegate authority to the DASC through the MASS commander to divert airborne aircraft or launch on-call aircraft. However, even when delegated this authority, DASC personnel will not normally make divert/launch decisions without consulting with appropriate FSCC personnel when possible. This coordination of fires is

affected to limit duplication of effort, ensure appropriate use of assets, and enhance situational awareness between the DASC and FSCC. It also serves as another check and balance to ensure that the aircraft is diverted in concert with the established priorities for direct air support.

### **DASC/Antiair Warfare (AAW) Agencies**

The DASC disseminates air defense control measures received from the TACC and/or tactical air operations center (TAOC) to applicable MAGTF elements, surface-to-air missile units, and aircraft under DASC control. The DASC provides friendly aircraft positions to air defense units/agencies (Stinger units, TAOC, etc.) to assist in the aircraft identification process. The DASC participates in AAW by coordinating suppression of enemy air defense (SEAD) for strike missions in support of the GCE. The DASC coordinates the return to force (RTF) of aircraft under its control with the appropriate AAW agency, normally the TAOC. Early in amphibious operations, the Stinger unit commander may establish his command post at the DASC to gain information on the location of friendly direct air support and assault support aircraft.

### **DASC/Tactical Air Coordinator (Airborne) (TAC[A])**

The TAC(A) is an on-site airborne extension of the DASC and FSCC or the Marine TACC/Navy TACC. The TAC(A)'s authority over aircraft operating within his assigned area will be specified by the DASC or TACC/TADC as appropriate. The TAC(A)'s principal responsibilities are to avert conflicts between aircraft and to coordinate the employment of air assets with other supporting arms. The TAC(A) coordinates as necessary with TACPs, FSCCs, forward air controllers (airborne) (FAC[A]), ASC(A)s, and artillery and NSFS fire direction centers.

Employment of a TAC(A) will depend on mission requirements and resource availability.

### **DASC/Assault Support Coordinator (Airborne) (ASC[A])**

The ASC(A) serves as an agency of the Navy tactical air control system (NTACS)/MACCS and is an airborne extension of the helicopter direction center (HDC) or DASC. The ASC(A) supports the air C<sup>2</sup> system and assists in airspace coordination and integration of assault support operations when the HDC/DASC is degraded or requires additional augmentation. The ASC(A) is normally used when numerous assault support operations are conducted or when the scope and complexity of the operations dictates this capability. The ASC(A) coordinates with TAC(A)s and FAC(A)s to provide CAS support and/or assault support operations.

### **DASC/TACP/Forward Air Controller (FAC)/Forward Air Controller (Airborne)**

The DASC receives and processes immediate direct air support requests from these terminal controllers. The DASC keeps the terminal controller and senior FSCC advised of the status of aircraft filling their request. The DASC provides aircraft direction and mission updates to aircraft prior to executing a procedural turnover to the terminal controller. This necessitates free information exchange to provide aircrew with the most complete and up-to-date information possible.

### **DASC/UAV**

The DASC controls the UAVs' inflight progression/egression to and from working areas and monitors its activities while in its working area. The UAV normally enters the airspace control system through the air traffic control (ATC) element at the UAV's operating airfield. After receiving a hand-off from the ATC element, the DASC provides routing and altitude clearance for the UAV. UAV controllers maintain continuous communications with the DASC. The DASC is kept advised of the UAV working area (using control points and established routes) and altitude by the GCS to ensure deconfliction with other aircraft and friendly surface delivered fires. The UAV controllers also supply the DASC with real-time surveillance information. This information is forwarded to the TACC/FSCC for use in the intelligence/targeting effort.

#### **DASC/Medical Regulating Team (MRT)**

The landing force medical regulating control officer (LFMRCO) and the MRT normally physically or electronically collocate with the DASC. The LFMRCO establishes a medical regulating control center (MRCC). A communications link is established between the DASC and the MRT to facilitate coordination of casualty evacuation. The LFMRCO will keep the DASC advised on availability of primary and alternate medical treatment facilities (MTF) and will recommend casualty evacuation to the facility best suited for a casualty's medical needs. The DASC will keep the LFMRCO advised of status of available MEDEVAC aircraft and missions. The LFMRCO will provide organic communications assets for his medical regulating nets. See FMFM 4-50, *Health Service Support*, for additional information on the MRT.

#### **DASC/Rear Area Operations Center (RAOC)**

Immediate air support requests from the MAGTF rear area are cleared through the air officer in the RAOC. These requests may be relayed to the DASC for processing. The DASC's ability to process immediate air support requests from the RAOC depends on many factors including physical location of the agencies, operational employment considerations, and the ability for both agencies to communicate. When geographical location and communications connectivity reduce response time, immediate air requests may be forwarded to the Marine TACC's air support coordination section for action (if the Marine TACC is located in the rear area). The TACC's air support coordinator (ASC) then coordinates mission specifics with the DASC.

## **DASC IN AMPHIBIOUS OPERATIONS**

### **Responsibility**

Initially, the commander, amphibious task force (CATF) exercises the overall control and coordination responsibility for the delivery of NSFS, air support, and LF artillery fire. When the commander, landing force (CLF) is ashore and has established the necessary facilities, and when the tactical situation permits, the CATF normally passes this coordination responsibility to the CLF. Thereafter, the CLF coordinates the supporting arms fires with maneuver forces. However, complete coordination authority is seldom passed at one time. Normally, the CLF assumes responsibility for various fire support functions as the necessary capability for that function is established ashore. The DASC is usually the first principal MACCS agency ashore and, once established, will normally assume control of direct air support aviation assets over land while the Navy TACC retains control of all aircraft moving from ship-to-shore.

## **CATF Supporting Arms Agencies**

The CATF provides two principal agencies to control and coordinate supporting arms fires during amphibious operations: the Navy TACC and the SACC.

**Navy TACC.** The Navy TACC is the primary air control agency within the AOA or designated AO from which all air operations supporting the ATF are controlled. The Navy TACC controls both air support and AAW aircraft.

**SACC.** The SACC is a single location on board an amphibious ship in which all communications facilities incident to the coordination of fire support of the artillery, air, and NSFS are centralized. The SACC is the naval counterpart to the LF's FSCC.

## **Transfer of Control and Coordination of Supporting Arms**

During an amphibious operation, control of air and NSFS is initially with the CATF. The CLF controls artillery through the GCE commander. When necessary facilities of the CLF are ashore and functioning and the tactical situation permits, the CLF requests from the CATF that control of NSFS and/or direct air support functions be passed ashore. Direct air support functions are normally passed ashore as MACCS facilities become functional.

**Passage of Control for Coordination of Supporting Arms.** The CLF exercises responsibilities for the coordination of supporting fires through the senior FSCC and MACCS agencies. Each agency must ensure it has the required information and requisite communications before supporting arms coordination

responsibilities are passed from the CATF to the CLF. Since most of the operational coordination occurs in the FSCC, the establishment and functioning of the FSCC(s) is critical to passing supporting arms coordination functions ashore.

Once ashore, the FSCC(s) and the DASC begin preparing for the passage of supporting arms coordination and control functions ashore. Typically, this preparation includes ensuring that communications are established with the appropriate control agency afloat; communications are established with aircraft; communications are established with terminal controllers/spotting teams ashore; target lists are on-hand; and the current ATO is on-hand. The operational functions that must be completed prior to passing supporting arms coordination functions ashore are normally outlined in a checklist. Completion of specific checklist items is often coordinated between the DASC and the SACC/Navy TACC.

Once all or part of the specified prerequisites for passing supporting arms control and coordination functions ashore are met, supporting arms coordination functions may be passed ashore. This normally occurs when the CLF requests from the CATF that control and/or coordination responsibilities of a particular supporting arms function be passed from the responsible agency afloat to its shore-based counterpart. Formal messages mark the completion of each step in the sequence of passing coordination and control of supporting arms from afloat to ashore. Often, the actual transfer of responsibility is requested and granted by voice radio transmission followed with formal messages.

Not all direct air support control functions need be passed ashore at once. For example, control of assault support aircraft may be passed ashore before control and coordination of direct air support aircraft. Because the various functions of aviation may be phased ashore incrementally, the ACE commander (through the

CLF) must specify those aviation functions which the DASC is ready to assume.

Once the DASC is established ashore and has been passed responsibility for the coordination of direct air support functions, the DASC is responsible to the Navy TACC for the execution of direct air support functions. If a Marine TADC has been established ashore, the Navy TACC may delegate the coordination responsibility to it. After the TACC functions are phased ashore, normal MACCS command relationships are resumed.

## **DASC IN JOINT/MULTINATIONAL OPERATIONS**

The DASC will be involved to some degree with joint/multinational operations. Joint operations are those operations conducted with other U.S. Services. Multinational (coalition) forces are those of friendly/allied nations with whom the U.S. is conducting operations. Both types of operations require special consideration for the DASC.

### **Joint Operations**

Working with other U.S. Services requires DASC crew members to be familiar with the structure and employment considerations of other Service equipment, agencies, doctrine, and personnel. Control procedures for the DASC's airspace control area (or sector) must be briefed to joint Service aviators, control agencies, and terminal controllers before these personnel conduct operations in the DASC's airspace. Procedures must be in place for those operations in which the DASC is to hand over aircraft from one joint agency (or airspace control authority) to another. The DASC must also obtain and be familiar with communications



plans and orders that may effect their airspace control procedures.

**DASC and Air Support Operations Center (ASOC).** The Air Force's ASOC is an element of the theater air ground system (TAGS) most analogous to the DASC. The ASOC is located at the Army corps level and facilitates immediate requests for air support submitted by the Army. Requests for air support are submitted by Air Force tactical air control parties over the Air Force air request net, which functions similar to the USMC tactical air request/helicopter request net. If the request can be supported by any echelon lower than the Corps, it is filled at that level. Once the request reaches the ASOC, the aircraft needed to support the mission are requested from the Air Force air operations center (AOC), a counterpart to the Marine TACC. The AOC will direct the ASOC on how to fill the request (launch or divert). Aircraft supporting the request will check in with the ASOC and be passed to the TACP. Like the DASC, the ASOC is a procedural control agency.

**DASC and Navy Counterparts.** The DASC does not have a direct counterpart in the Navy's organizational structure. Rather, the DASC performs similar functions to parts of the Navy's HDC for coordination of helicopter missions and the Navy TACC for coordination of direct air support missions. See NWP 22-2, *Supporting Arms in Amphibious Operations*, for details on naval air control agencies.

## Multinational Operations

The DASC's considerations for conducting joint operations can be aptly applied to multinational operations. In multinational

operations, there is an absolute requirement to transverse the language barrier, not only in terms of the language used, but also regarding common terminology. DASC personnel must also become familiar with varying forms and formats for the ATO/NATO air tasking message (ATM). If possible, liaison personnel from the host nation/allied country should be included in the DASC. DASC members and MASS communications experts are normally tasked to provide liaison personnel and communications links between the DASC and foreign nation direct air support agencies.

### **Special Considerations**

Members of the air/naval gunfire liaison company (ANGLICO) will typically provide terminal control services to CAS aircraft working with joint and multinational forces. It is important that DASC personnel make liaison with each ANGLICO team leader prior to the onset of joint/multinational operations. Communications frequencies, airspace control procedures, DASC location, alternate and tertiary communications capabilities, etc. must be briefed and understood by both ANGLICO and DASC Marines. ANGLICO, in turn, must keep the DASC apprised of their locations and intentions throughout the operation.

## **PROCEDURAL CONTROL OF DIRECT AIR SUPPORT AIRCRAFT**

Procedural control is defined as “a method of airspace control that relies on a combination of previously agreed and promulgated orders and procedures.” (Joint Pub 1-02) Controlling procedures include, but are not limited to control points (CPs);

minimum risk routes (MRRs); RTF procedures; formal and informal airspace coordination areas (ACA); and positive, 2-way communications between the DASC and the aircrew. Although aircrews are ultimately responsible for the safety of their aircraft, the DASC assists the aircrews by maintaining situational awareness of all that is occurring within the assigned airspace and routing aircraft in a manner that precludes conflict within the airspace.

There are three ways in which the DASC can segregate aircraft in the airspace: time, altitude, and lateral separation. Depending on the tactical situation, the DASC will use one of these, or a combination of all three, during the routing of each mission/sortie. Segregation of aircraft, whether by time, altitude, or lateral separation, is an important aspect of procedural control and is designed to allow freedom of movement for friendly aircrews. Aircrews can then focus on the mission and eluding enemy detection. Because these methods of segregation are *procedural*, the DASC must be aware of the entire 3-dimensional battlespace and assist aircrews by gaining their confidence, providing concise and safe routing, and maintaining situational awareness.

Aircrews can assist the DASC by relaying their intentions, radioing the DASC at their designated CP (or while inbound to the CP), respond to the DASC's routing/control, and providing accurate position/location information. The DASC has no radar and must rely on the information it receives from aircrews and other agencies to manage and control the designated ACA/sector. If the information the DASC receives is accurate and timely, the DASC will provide aircrews and other agencies with timely, accurate information.

The key to effective procedural control is that the DASC must rely on information it receives from the aircrew, TACC/TADC, FSCC, and other air C<sup>2</sup> agencies in order to build their situational awareness of the 3-dimensional battlefield. *THE DASC IS ONLY AS GOOD AS THE INFORMATION IT RECEIVES.*

## **DASC SITING CONSIDERATIONS**

The DASC provides a crucial interface between the GCE and ACE in regards to direct air support operations. As such, planners must consider several factors when determining the DASC's location.

### **Proximity to the FSCC**

A reliable, consistent link between the DASC and the GCE's senior FSCC is vital for coordination and integration of direct air support missions with the employment of other supporting arms and for the expeditious processing of immediate tactical air requests and assault support requests. The link (or means of communications) between the DASC and the FSCC can be accomplished by wire and/or single channel radio. Preferably, the DASC and the senior FSCC are physically collocated. If not, an ASLT may be provided to the FSCC to assist in the transfer of information. When practical, the DASC should physically collocate with the GCE's senior FSCC. Physical collocation significantly enhances coordination between the two agencies. However, electronic collocation with the FSCC is an acceptable alternative if the FSCC site is not large enough to include DASC equipment or if the site does not support the DASC's communications requirements.

### **Communications**

The single most important siting factor for the DASC to consider is its ability to communicate. Because the DASC is a procedural control agency, it gains air situational awareness through communication with aircraft, terminal air controllers, air defense agencies, and other air C<sup>2</sup> agencies involved with direct air support operations. As such, the primary rule for positioning the DASC is that the DASC must be located where it can communicate best to optimize its effectiveness.

### **Security**

In addition to protection from the enemy's direct fire weapons, the DASC should be located in an area that affords reliable, secure communications. Optimal use of terrain that masks the DASC from enemy positions, use of directional antennas, and remoting and dispersing antennas enhance communications and serve to reduce the DASC's electromagnetic signature. These considerations have both a positive and negative affect on DASC operations and must be weighed against the DASC's need for mobility, time for site set-up and tear-down, and ability to effectively communicate with aircraft and other ground agencies.

### **Mobility**

The requirement to employ a mobile DASC must be addressed as early as practical in the planning cycle. Because of its extensive communications and security requirements, the DASC should remain established in a single location as long as practical. Factors influencing the DASC's displacement include movement of the GCE (and its FSCC) and the enemy threat to the DASC.

## **FUTURE EMPLOYMENT**

The historic employment of the DASC will not change in the foreseeable future. Traditionally, the DASC has been employed using three types of configurations: DASC, DASC(A), and echelon DASC. The HMD DASC will provide a modular capability that allows the DASC to employ its primary ground configurations, the DASC and echelon DASC, in its doctrinal manner. RAMDASC will further expand the DASC's airborne role. The HMD DASC and RAMDASC may be employed as described below in future operations.

### **DASC Configuration**

As the primary direct air support agency for the MAGTF, the DASC configuration, consisting of the two or more HMD DASC shelters and associated support equipment, will provide the operational capability to perform all doctrinal functions. Capable of task organization, the DASC configuration will normally be employed in MEF or MEF(Fwd) operations. The mobility afforded by the HMD DASC will significantly improve the DASC's ability to move on fluid battlefields. In the HMMWV configuration, the HMD DASC will be able to establish sites previously unreachable by 5-ton vehicles; thus expanding the number of potential sites available to the DASC.

### **Echelon DASC**

The echelon DASC, consisting of a single HMD DASC, will usually operate for a limited time to allow the primary DASC site to relocate. Once passed direct air support control functions from the primary DASC, the echelon DASC will provide direct air support control and coordination functions until the primary

DASC's movement is completed and the primary DASC is prepared to reassume those functions.

### **Airborne DASC**

The DASC(A) may be used to support echelon operations, augment the DASC's communications, or coordinate air operations as an extension of the DASC. RAMDASC equipment may be transferred from a ground-based station and placed in KC-130 or MV-22 aircraft where the DASC(A) will be staffed by DASC operators. The DASC(A) will normally be employed in MEF or MEF(Fwd) operations.

### **Amphibious Operations**

During the build-up of combat power ashore, the MACCS will employ its assets incrementally. During MEF or MEF(Fwd) operations, the initial DASC capability introduced ashore could consist of a single HMD DASC shelter, communications suite, and associated support equipment. As the operation matures, additional DASC shelters and communications equipment could be introduced to expand the DASC's capabilities. In MEU level operations, the ASLT may effect the first direct air support element to arrive ashore. ASLTs may be equipped with a HMD DASC or man-portable radios.

## Chapter 5

# Training

Every Marine Corps leader has the responsibility to establish and conduct technical and tactical training for Marines to successfully accomplish the unit's mission. The tools available to assist leaders in establishing the base for an effective training plan are relevance, standardization, efficiency, and specificity. Due to the complexities of amphibious, joint, and multinational operations, the importance of individual, crew, and unit level training for DASC controllers and operators cannot be understated. The impact from meaningful, quality training reflects on a Marine's proficiency.

### INDIVIDUAL TRAINING

DASC controller and operator training requirements are standardized by MCO P3500.19, *Training and Readiness (T&R) Manual*. It specifies training events and position requirements necessary for controllers and operators to progress through various level qualifications. Follow-on formal training is available to those Marines who demonstrate military occupational specialty (MOS) proficiency.

#### Formal Schools

**Entry Level Training.** Entry level training for DASC controllers and operators is conducted at the Air School, Marine Corps



Communication-Electronics School, Marine Corps Air-Ground Combat Center, Twentynine Palms, California.

***Air Support Control Officer Course (ASCOC).*** The ASCOC provides entry level instruction to newly acceded and laterally moved officers in the operation of the DASC. The ASCOC provides students with a thorough knowledge of air support, assault support, and techniques of direct air support employment in the Fleet Marine Force (FMF). Students receive specific instruction on procedural control of aircraft; functions and roles of various DASC crew members; EW; and nuclear, biological, and chemical (NBC) defense in the DASC.

***Air Support Operations Operator Course (ASOOC).*** The ASOOC provides initial training for entry level and laterally moved enlisted Marines in the DASC's operations. Course content includes operation and employment of DASC equipment, EW, NBC defense in the DASC, and DASC crew training.

***Graduate Level Training.*** Air support control officers (MOS 7208) exhibiting requisite technical and tactical proficiency may be selected by their commands to attend the Weapons and Tactics Instructor (WTI) Course. WTI provides students advanced training and practical application on planning, integration, and execution of the six functions of Marine aviation. MOS 7208 students receive specific instruction in the areas of MACCS, air support planning considerations, and the DASC's operational execution. Prerequisites for WTI attendance include SAD qualification with MEF(Fwd) exercise/operation experience. Upon completion, students receive the MOS 7277 (WTI) designation. A similar program, the Weapons and Tactics Crew Chief Instructor (WTCCI) Course, is available for DASC crew chiefs. The WTCCI Course addresses the same basic curriculum as the 7208 course, but the practical application is geared toward the DASC

crew chief. Prerequisites include qualification as a crew chief and experience in a MEF(Fwd) exercise/operation.

**Follow-on Schools.** Additional formal schools are available for field grade officers including the WTI Commanders Course and WTI Refresher Course. Held at Marine Corps Air Station (MCAS), Yuma, Arizona, the WTI Commanders Course provides field grade officers with an opportunity to examine and discuss issues affecting the MACCS and considerations for MACCS employment. The WTI Refresher Course is conducted for WTIs who have been out of the FMF or serving in a non-DASC-related billet. The course is designed to update the WTI on current and evolving weapons, tactics, and threat information.

**Other Schools.** Other courses of instruction applicable to DASC operator proficiency are available from the expeditionary warfare training group (EWTG). Instruction from EWTG may be conducted at the schoolhouse or from on-site mobile training teams. EWTG periodically provides a list of available courses.

### **On-the-Job Training (OJT)**

Most DASC controller and operator MOS training is conducted at the squadron level. Requirements for both academic and practical application training and position qualification for DASC controllers and operators is specified in MCO P3500.19. A specific T&R syllabus exists for MOS 7208 controllers and MOS 7242 operators. Tracking of individual readiness is computed by the aviation training and readiness information management system (ATRIMS). DASC controller and operator training is conducted at four progressive levels. Completion of each level equates to reaching a given combat readiness percentage (CRP).

An outline of the phases, position qualifications reached, and corresponding individual CRP is outlined below.

**Combat Capable Training.** A Marine with this rating has a basic proficiency in air support operations and has a CRP of 60 percent. MOS 7208 controllers will be TAD- and HD-capable; MOS 7242 operators will be a capable net operator. Currently, this rating is a prerequisite for graduation from the ASCOC and ASOOC.

**Combat Ready Training.** This level of training constitutes a 70 percent CRP. MOS 7208 controllers will be a qualified HD and TAD; MOS 7242 Marines will be qualified net operators.

**Combat Qualification Training.** Personnel at this level of proficiency will have an 85 percent CRP and be combat qualified. MOS 7208 officers will attain MEF(Fwd) SAD qualification; MOS 7242 operators will be a qualified MEF(Fwd) crew chief.

**Full Combat Qualification Training.** The full combat qualified Marine is qualified as a MEF-level SAD (in the case of MOS 7208) or crew chief (in the case of MOS 7242) and is well versed in MACCS, MAGTF, and joint/multinational Service operations. These individuals have attained a 100 percent CRP.

**Special Qualifications.** The instructor-under-training syllabus is designed to develop proficiency in instructional procedures and techniques. At the completion of this training, the individual should be capable of describing/demonstrating all the training objectives of the syllabus. Instructor training is oriented toward the functional areas of either air support control instructor (ASCI) or threat tactics instructor (TTI). Students must complete the appropriate courses and be certified by a qualified DASC WTI.

Once certified, the individual will be designated by the commanding officer in writing.

### **CREW TRAINING**

The DASC crew is the key to effective and efficient air support control. The MASS trains DASC crews through live exercises, command post exercises (CPX), and DASC drills. The DASC drill consists of a DASC crew and a simulator cell. The simulator cell is usually a mirror image of the DASC crew and is staffed by more experienced personnel who execute the scenario as the FSC, aircrews, TACC, TACP's, etc., and assists in evaluating the performance of the DASC crew members. Also, one or more experienced MOS 72XXs observe from inside the DASC to objectively evaluate the performance of the crew members and the crew coordination. The DASC drill and post-drill debrief are essential to build fundamental skills and crew coordination.

### **UNIT TRAINING**

Unit training involves that training required to prepare the MASS to perform its mission. Unit training can take on many forms including CPXs and field training exercises (FTXs). During unit training, MASS personnel are intimately involved in preparing training plans and coordinating with higher, adjacent, and subordinate C<sup>2</sup> and support elements.

### **Marine Aviation Planning Problem (MAPP) Exercises**

MAPP exercises are low cost, low overhead training which allow commanders to train their staffs to perform special integration

and control functions in a simulated environment. MAPP exercises are particularly effective for determining C<sup>2</sup> requirements to support possible contingencies.

### **MACCS Integrated Simulated Training Exercise (MISTEX)**

The MISTEX is a MACG locally-produced exercise which involves detailed preparation of a simulated scenario and its subsequent execution at the MACCS level. The MISTEX can serve to prepare units for upcoming FTXs or contingencies. Individual Marine participation in filling a crew position during a MISTEX is a T&R requirement for position qualification.

### **Joint Service Training Exercise (JSTE)**

JSTEs provide integrated systems training that incorporates the challenge of integrating the MACCS in joint operations. JSTE scenarios have been developed to support joint command and control training for probable contingency operations worldwide.

### **Other Unit Training**

In addition to CPX and simulated exercise type training, the DASC often deploys to the field to participate in FTXs. Field training provides a unit with the most beneficial training opportunities available, living and operating in conditions similar to that which would be expected in real world operations.

## MEU Participation

All MASS units provide ASEs to support standing MEUs. The opportunity to serve on a MEU's ASE provides outstanding training for DASC controllers and operators, especially in the area of joint/multinational supporting arms integration. The chance to participate with joint/multinational Services in relatively low-intensity operations allows Marines to become intimately involved in the coordination of supporting arms on a variety of scenarios, including special and amphibious operations. MEUs also provide insight into the "behind the scenes" efforts and coordination required to execute amphibious operations as a MAGTF. MASS personnel typically apply the lessons learned and procedures used during MEU operations to similar exercises/operations of larger scale.

## EVALUATING TRAINING

The success of individual, crew, and unit training must be qualitatively measured to identify training deficiencies and create a baseline for designing future training. Evaluation tools to identify training deficiencies are MCO 3501.9B, *MCCRES*, and MCO P3500.19. The MCCRES is a standardized, Headquarters Marine Corps directed evaluation program designed to measure a unit's warfighting readiness. It specifies mission performance standards (MPS) which agencies are expected to perform during their wartime mission. MCO P3500.19 specifies individual performance standards.

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## **Appendix A**

# **Crew Briefing Guide/Format**

### **OPERATIONS BRIEF**

The DASC operations brief incorporates all elements of information that are essential to DASC employment. The operations brief is most appropriate for planners and is not intended to supplant the DASC crew brief. It focuses on a different level and time frame well before final preparations for execution.

Unlike other MACCS agencies, the DASC shares its planning focus with GCE issues. These issues, outlined below, represent only the most vital topics and are not all inclusive. GCE issues (in particular) vary depending on the particular exercise or operation.

Information in the DASC operations brief can also be used by ASLT personnel as a checklist for mission critical information. Likewise, an independent ASE can use the operations brief for a mission specific briefing tool or execution checklist. The operations brief is normally provided in the following format:

#### **Intelligence**

- NBC capability
- Night capability
- Unconventional warfare capability

- Ground order of battle:
  - Force composition/locations/potential axes of advance
  - Surface-to-surface missile (SSM) threat
  - Surface-to-air missile (SAM) threat
  - Antiaircraft artillery (AAA) threat
  - Overall ground threat capabilities assessment
- Air order of battle:
  - Location/disposition/likely attack axes
  - AAW capabilities
  - Offensive air support capabilities
  - Air-to-surface missile (ASM) capabilities
  - UAV capabilities
  - Satellite overflight information (capabilities, time, etc.)
  - Overall air threat capabilities assessment
- Electronic order of battle:
  - EA capabilities
  - Electronic warfare support (ES) capabilities
  - Overall threat EW capabilities assessment



- Naval order of battle
- Centers of gravity
- Key vulnerabilities
- Key strengths
- Most likely COAs

## **MAGTF**

- MAGTF commander's intent/concept of operations
- AOA/AO description:
  - Sector limits
  - Mobility/trafficability
  - Weather considerations
- Rules of engagement (ROE)
- Adjacent/supporting units:
  - Multinational forces issues
  - National asset (ELINT) support
    - Joint forces issues
    - Liaison requirements
    - Connectivity

### **Ground Combat Element**

- Force composition
- GCE commander's intent/scheme of maneuver
- Fire support coordination measures
- Parachute drift (DP)/named areas of interest (NAI)/targets of interest (TAI)/high value targets (HVT)/high priority targets (HPT)
- Priority of fires and locations:
  - Artillery
  - NSFS
  - Aviation

### **Aviation Combat Element**

- ACE commander's intent/concept of employment
- Launch and divert authority:
  - CAS
  - Assault support
  - Air defense
- OAS:
  - Priority of CAS
  - Strip launch/airborne alert availability

- Location of assets
- Assault Support:
  - Priorities of assault support
  - MEDEVAC:
    - Procedures/connectivity
    - Medical facility location and priority
  - Tactical recovery of aircraft and personnel (TRAP):
    - Procedures/connectivity
    - TRAP zones and safe areas
    - Isolated personnel reporting (ISOPREP) data
  - Combat search and rescue (CSAR):
    - Procedures/connectivity
    - Responsibility
  - Strip alert aircraft availability, procedures, and locations
  - Forward arming and refueling point (FARP) and FOB locations and connectivity
  - Landing zone locations and status
  - Tanker plan
- Air Reconnaissance:

- UAV employment plan:
  - RIO procedures
  - Routing/deconfliction plan
  - Connectivity with the GCS
- Tactical air reconnaissance photograph system (TARPS) employment
- Air control procedures:
  - MRR/orbit areas
  - Control points
  - Weapon engagement zones (WEZ)
  - RTF/lame duck procedures
  - ACAs
  - Fade/bugout plan
  - UAV loiter area
  - Hung ordnance jettison area
  - RIO sequence
  - Terminal control information
  - Airborne C<sup>2</sup> availability/employment
  - Air defense warning condition/state of alert (SOA)/ weapons control status information

- ATO dissemination
- MACCS agency casualty procedures

### **Communications**

- Communications architecture
- EMCON procedures
- Chattermark procedures
- Prowords/codewords
- Execution checklists
- Cryptography:
  - Required hardware/software
  - Changeover times
- Current period for the communications-electronics operating instructions (CEOI)
- Challenges and passwords
- Required reports
- Communications net prioritization/restoration
- Intelligence connectivity

### **Logistics Resupply**

- Water/fuel/meals, ready-to-eat (MRE)/batteries
- Repair parts/expendables/replacement of major items
- Personnel/administrative issues
- Transportation (airlift, sealift, etc.) considerations

### **Questions**

## **CREW BRIEF**

Crew briefs are designed to pass mission critical information, discuss pertinent procedures, and critique/recap significant events. Crew briefs should be as detailed as practical but may be abbreviated to meet mission requirements. The DASC's crew briefs typically occur in three phases:

- Pre-Watch Brief
- Crew Change Brief
- Post Watch Debrief

The minimum required information to be passed in a DASC brief is specified in MCO 3501.9B. This information, combined with additional useful information, is outlined on the following pages.

### **Pre-Watch Brief**

#### **Time Hack**

#### **Introduction (SAD)**

- Identifies alternate SAD and crew leaders
- Identifies briefers
- Mission statement priorities
- Status of controllers' responsibilities in the AOA/AO

**Intelligence (S-2 Officer)**

- Weather:
  - Local weather
  - Ingress/egress route weather
  - Target weather
  - Weather, location, and capabilities
  - Light Data:
    - Beginning of morning nautical twilight (BMNT)
    - End of evening nautical twilight (EENT)
    - Sunrise/sunset
    - Moonrise/moonset
    - Moonphase
  - Forecast
- Enemy order of battle:
  - Electronic order of battle:
    - EA/ES capabilities
    - Meaconing, intrusion, jamming, and interference (MIJI) considerations



- Ground controlled intercept (GCI) capability
- Air order of battle
- SAM capabilities and locations
- AAA capabilities and known locations
- Naval order of battle
- Enemy capabilities, weaknesses, and likely COAs
- CSAR/TRAP/survival, evasion, resistance, and escape (SERE) information:
  - Safe areas
    - Location
    - Description
  - CSAR/TRAP availability/callsign/frequency/location
  - TRAP launch/divert authority
  - ISOPREP data

### **Friendly Forces**

- Ground units (FSCC Coordinator):
  - Locations:
    - Forward edge of the battle area (FEBA)/forward line of own troops (FLOT)
    - NSFS stations and gun-target lines

- Artillery batteries and gun-target lines
- Other known location of friendly activity
- Scheme of maneuver/main effort
  - Primary and alternate landing zones
  - Ingress/egress routes
  - Control points
  - Escorts
  - On-call and preplanned CAS in support of—
    - TAC(A)s
    - ASC(A)s
    - FAC(A)s
    - FACs
    - TACPs
- Priority of fires and locations:
  - Naval fire support
  - Artillery
  - Aviation
- Senior FSCC and location:
- Communications

- Echelon procedures
  - Fire support coordination measures:
    - Hung ordnance jettison area
    - ACAs
    - Fire support coordination line (FSCL)
    - No-fire areas (NFA)
    - Etc.
- Ground terminal controllers
- Air (TAD/HD)
  - Launch and divert authority
    - CAS
    - Assault support
    - Air defense
  - Strip alert aircraft
    - Time/location
    - Ordnance
    - Communications
  - Tanker plan
    - Tanker tracks

- Time-on-station
- Giveaway
- Helicopters:
  - Requests
  - FARP locations:
    - Communications
    - Control procedures
  - Naval platforms
- TAC(A)/ASC(A)
- UAV employment plan

**Air Defense (Tactical Air Director/Helicopter Director)**

- Threat/alert and weapons conditions:
  - Indicators
  - Tactics
  - Early warning detection points
- TAOC location(s)/status
- Communications with air defense elements/agencies
- ROE/identification (ID) criteria:
  - Routes of flight

- Entry/exit pints
- Ground-based air defense (GBAD) units
  - Missile engagement zones (MEZ)
  - Location of Stinger/Avenger teams
  - HAWK location(s) and status
  - Communications
- High value airborne asset (HVAA) fade and bugout plan:
  - Supporting communications plan
  - Fade/bugout criteria and authority
  - Station reset criteria and authority
  - Visual combat air patrol (VISCAP) concerns/coordination

**DASC Status (Crew Chief)**

- Communications:
  - Nets
    - Locations and radio/antenna type and configuration
    - Encryption devices available
    - Hot lines
    - EMCON/EP procedures

- Communication materials system (CMS) considerations:
  - Authentication codes
  - Numerical codes (NUCODE)
  - Location
  - Responsibility
- Crew Functioning:
  - Positions and locations
  - Relief and casualty procedures
  - Net responsibilities
- Reports required and routing:
  - MIJI/frequency interference report (FIR)
  - JTAR, JTAR/S, JTEWR, ASR
  - BDA/MISREP
  - Intelligence /spot reports
  - Pilot's reports (PIREP)
  - MACCS status
  - DASC equipment status
  - Joint/multinational forces reports
  - Information routing procedures

- Codewords/COMSEC:
  - Mission
    - Continue
    - Change
    - Cancel
    - Abort
  - Challenge/reply
  - Mission specific code words and procedures

**Airspace (Tactical Air Director/Helicopter Director)**

- Range available:
  - Altitudes
  - Airspace restrictions
  - Ordnance areas/restrictions
- Airfield operations:
  - Ground controlled approach (GCA) facilities
  - Divert fields
  - Navigation aids (NAVAID)
  - Frequencies/communications
  - Fuel and ordnance availability

- Emergency recovery procedures
- Lost communications procedures

**Summary (Senior Air Director)**

- MACCS agencies casualty procedures
- Additional information germane to operations
- MEDEVAC procedures
- Crew change:
  - Time
  - Order of relief
  - Procedures
- Crew debrief:
  - Time
  - Location
- Questions



## **Crew Change Brief**

The order of crew relief is a decision made by the oncoming and offgoing SADs. Information exchanged between the offgoing and oncoming crews includes, but is not limited to, the following:

### **Communications Personnel**

- Equipment problems experienced during the watch
- Suspected equipment failures
- Frequency disparity
- Status of all communication links
- Cryptographic device software changeovers

### **Plotters**

- Fixed-wing aircraft currently airborne and the location of those aircraft
- Rotary-wing aircraft currently airborne and the location of those aircraft
- Current numbering for JTAR, JTAR/S, JTEWR, ASR, and MEDEVAC forms
- Active ACAs and MEZs
- Location of FOBs
- Location of UAVs

- Scheduled major helicopter lifts
- Updates/changes to the scheme of maneuver
- Active artillery positions
- Locations of GBAD units

### **Fire Support/Safety Net Operators**

- Recent changes to fire support coordination measures
- Updates/changes to the scheme of maneuver
- Location of NSFS/artillery units
- Active ACAs
- Latest information on enemy location(s)
- Location of GBAD units
- Free fire areas/ordnance jettison areas

### **Tactical Air Traffic Control Net Operator (As Required)**

- Missions which are airborne, on alert status, late for launch or time on target, etc.
- Changes to RIO sequence/information passed
- Changes to air control procedures
- Safety of flight issues
- Location(s) of UAVs

- Active ACAs

### **Tactical Air Director**

- Status of all ongoing events; airborne, on alert, late RIO, etc.
- Status of pre-planned/immediate missions
- Status of diverted aircraft (if applicable)
- Call signs of all terminal controllers and which controller (s) are working airborne aircraft
- Pending BDAs
- Location of TAC(A)s and FAC(A)s
- Next JTAR, JTAR/S, JTEWR number
- Air defense warning and weapons release conditions
- Safety of flight information
- UAV locations
- Pending nine-line briefs
- Fire support coordination measures in effect

### **Helicopter Director**

- Status of all aircraft airborne, on alert, and diverted
- Status of all pre-planned/immediate missions
- Status of any on-going MEDEVACs
- Status of on-going ASRs

- Location(s) of ASC(A), FAC(A), and/or airborne mission commander (AMC) (if applicable)
- Changes to routing procedures
- Locations of aircraft in LZs
- Location of CSAR/TRAP/MEDEVAC package(s)
- Air defense warning condition and weapons release status

#### **Tactical Air Command Net Operator**

- Air defense warning condition and weapons release status
- Expected responses to late mission queries
- On-going significant events
- Weather status

#### **Direct Air Support Net Operator**

- Air defense warning condition and weapons release status
- Pending responses from the TACC (strip launches, etc.)
- Latest BDA passed to the TACC
- Friendly positions
- Changes to enemy locations
- Current weather information

### **Tactical Air Request/Helicopter Request Net Operators**

- Next JTAR, JTAR/S, JTEWR, ASR, and MEDEVAC numbers to be assigned
- Status of current JTARs, JTAR/Ss, JTEWRs, ASRs, and MEDEVAC requests
- Expected BDAs to receive or mission status to pass
- Units not answering on net including station call signs
- Status of troop lifts
- Status of incomplete requests for mission information

### **Crew Chief**

- Pertinent information regarding DASC crew members
- Status of all ongoing missions
- Changes and updates in fire support coordination measures
- Communications support/equipment status
- Changes of radios/nets/positions due to equipment problems
- Significant events
- Outstanding JTARs, JTAR/Ss, JTEWRs
- Outstanding ASRs
- Outstanding MEDEVAC requests

- Changes and updates available from intelligence representatives.

### **Senior Air Director**

- Communications support/equipment status
- ATO information
- Aircraft significantly late to radio in or radio out
- Aircraft assignments for upcoming, diverted, strip alert, etc. missions
- Pending immediate requests for support
- Changes to scheme of maneuver
- Changes to priority of fires
- MIJI incidences reported
- Downed/distressed aircraft
- Any significant past, present, or future events that could impact on operations
- Status of diverted aircraft
- Availability of strip alert aircraft
- Current MEDEVAC procedures

## **Post Watch Debrief**

The post watch debrief contains elements from each significant event that occurred during the watch. The debrief serves as an important learning tool for all crew members. For maximum benefit, a constructive critique of each crew members' performance should be included. Significant events discussed include--

- Information flow internal and external to the DASC
- Control procedures
- Position information problems, recommended remedies, etc.
- Use of forms within the DASC
- Effectiveness and proper use of radio/transmission (R/T) procedures
- Reviewing the amount of radio traffic for possible consolidation on future watches/operations
- Other items deemed necessary by the crew

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## **Appendix B**

# **Glossary**

### **Section 1**

#### **Acronyms**

AAA	antiaircraft artillery
AAW	antiair warfare
ACA	airspace coordination area
ACE	aviation combat element
AM	amplitude modulation
AMC	airborne mission commander
ANGLICO	air/naval gunfire liaison company
AO	area of operations
AOA	amphibious objective area
AOC	air operations center
ASC	air support coordinator
ASC(A)	assault support coordinator (airborne)
ASCI	air support control instructor
ASCOC	air support control officer course
ASE	air support element
ASLT	air support liaison team
ASM	air-to-surface missile
ASOC	air support operations center
ASOOC	air support operations operator course
ASR	assault support request
ATC	air traffic control
ATF	amphibious task force
ATHS	automatic target handoff system
ATM	air tasking message (NATO)
ATO	air tasking order



ATRIMS . . . . . aviation training and readiness information  
management

system

BDA . . . . . battle damage assessment

BMNT . . . . . beginning of morning nautical twilight

BUU . . . . . basic user unit

C<sup>2</sup> . . . . . command and control

C2W . . . . . command and control warfare

CAC<sup>2</sup>S . . . . common aviation command and control system

CAS . . . . . close air support

CATF . . . . . commander, amphibious task force

CCP . . . . . communications control panel

CE . . . . . communications-electronics

CEOI . . . . . communications-electronics operating instructions

CID . . . . . combat identification

CLF . . . . . commander, landing force

CMS . . . . . communication materials system

COA . . . . . course of action

COMSEC . . . . . communications security

CP . . . . . control point

CPX . . . . . command post exercise

CRP . . . . . combat readiness percentage

CSAR . . . . . combat search and rescue

CSSE . . . . . combat service support element

DAS . . . . . deep air support

DASC . . . . . direct air support center (MACCS agency)

DASC . . . . . direct air support central (equipment suite)

DASC(A) . . . . . airborne DASC

DCT . . . . . digital communications terminal

DP . . . . . parachute drift

EA . . . . . electronic attack

ECAC . . . . . Electromagnetic Compatibility Analysis Center

EENT	end of evening nautical twilight
ELINT	electronics intelligence
EMCON	emission control
EOB	enemy order of battle
EP	electronic protection
EPLRS	enhanced position location reporting system
ES	electronic warfare support
EW	electronic warfare
EWTG	expeditionary warfare training group
FAC	forward air controller
FAC(A)	forward air controller (airborne)
FARP	forward arming and refueling point
FEBA	forward edge of the battle area
FIR	frequency interference report
FLOT	forward line of own troops
FM	frequency modulation
FMF	Fleet Marine Force
FOB	forward operating base
FSC	fire support coordinator
FSCC	fire support coordination center
FSCL	fire support coordination line
FTX.	field training exercise
GBAD	ground based air defense
GCA.	ground controlled approach
GCE	ground combat element
GCI	ground controlled interception
GCS	ground control station
HD	helicopter director
HDC	helicopter direction center
HF	high frequency
HMD	high mobility downsized

HMMWV ..... high mobility, multipurpose  
wheeled vehicle

HPT ..... high priority target

HVAA ..... high value airborne asset

HVT ..... high value target

Hz ..... hertz

ICS ..... intercommunications station

ID ..... identification

IDASC ..... improved direct air support central

IFSAS ..... integrated fire support automated system

ISO ..... International Standards Organization

ISOPREP ..... isolated personnel reporting

JSTE ..... joint service training exercise

JTAR ..... joint tactical air strike request

JTAR/S .. joint tactical air reconnaissance and surveillance

JTEWR ..... joint tactical electronic warfare request

kw ..... kilowatt

LAAD ..... low altitude air defense

LF ..... landing force

LFMRCO ..... landing force medical regulating  
control officer

LMS ..... lightweight multi-purpose shelters

LOS ..... line of sight

LZ ..... landing zone

MACCS ..... Marine air command and control system

MACG ..... Marine air control group

MAPP ..... Marine aviation planning problem

MASS ..... Marine air support squadron

MAGTF ..... Marine air-ground task force

MCAS ..... Marine Corps air  
station

MCCRES ..... Marine Corps Combat Readiness

	Evaluation System
MEDEVAC .....	medical evacuation
MEF .....	Marine expeditionary force
MEF(Fwd) .....	Marine expeditionary force (forward)
MEP .....	mobile electric power
MEU .....	Marine expeditionary unit
MEZ .....	missile engagement zone
MHE .....	materials handling equipment
MIJI ....	meaconing, intrusion, jamming, and interference
MINCOMM .....	minimum communications
MISREP .....	mission report
MISTEX. ....	MACCS integrated simulated training exercise
MOS .....	military occupational specialty
MPS .....	mission performance standard
MRCC .....	medical regulating control center
MRE .....	meal, ready-to-eat
MRR .....	minimum risk route
MRT .....	medical regulating team
MTF .....	medical treatment facilities
NAI .....	named area of interest
NATO .....	North Atlantic Treaty
Organization	
NAVAID .....	navigation aid
NBC .....	nuclear, biological, and chemical
NFA .....	no-fire area
NOCOMM .....	no communications
NSFS .....	naval surface fire support
NTACS .....	Navy tactical air control system
NUCODE .....	numerical code
OAAW .....	offensive anti-air warfare
OAS .....	offensive air support

OIC ..... officer in charge  
OJT ..... on-the-job training  
OPLAN ..... operation plan  
PIP ..... product improvement program  
PIREP ..... pilot's report  
PLRS ..... position location reporting system  
RAMDASC ..... replacement airborne-mobile direct  
                air support central  
RAOC ..... rear area operations center  
RASC ..... regional automated services center  
RF ..... radio frequency  
RFI ..... request for information  
RIO ..... radio in/out  
ROE ..... rules of engagement  
R/T ..... radio/transmission  
RTF ..... return to force  
SACC ..... supporting arms coordination center  
SAD ..... senior air director  
SAM ..... surface-to-air missile  
SEAD ..... suppression of enemy air defenses  
SERE ..... survival, evasion, resistance and escape  
SIGINT ..... signals intelligence  
SIGSEC ..... signals security  
SNCO ..... staff noncommissioned officer  
SNCOIC ..... staff noncommissioned officer in charge  
SOA ..... state of alert  
SPEED .. system, planning, engineering evaluation device  
SSM ..... surface-to-surface missile  
SWO ..... senior watch  
officer  
T&R ..... training and readiness  
TAC(A) ..... tactical air coordinator (airborne)

TACC	tactical air command center (USMC)
TACC	tactical air control center (USN)
TACP	tactical air control party
TAD	tactical air director
TADC	tactical air direction center
TAGS	theater air ground system
TAI	target area of interest
TAI	telephone adapter interface
TAOC	tactical air operations center
TARPS	tactical air reconnaissance photograph system
TCO	tactical combat operations
T/E	table of equipment
TLDHS	target location, designation, and handoff system
T/O	table of organization
TRAP	tactical recovery of aircraft and personnel
TTI	threat tactics instructor
UAV	unmanned aerial vehicle
UHF	ultrahigh frequency
v	volt
VHF	very high frequency
VISCAP	visual combat air patrol
WEZ	weapon engagement zone
WTI	weapons and tactics instructor
WTCCI	weapons and tactics crew chief instructor

## Section II Definitions

### A

**air support element** - The air support element is an element task organized by the Marine air support squadron to perform various air support control functions for the Marine expeditionary unit. The ASE is not a direct air support center (DASC), but is capable of assisting in the control of direct air support operations for a limited period of time in a limited area. The air support element can function as an extension of the Navy tactical air control center/helicopter direction center, in conjunction with the battalion tactical air control party. (FMFRP 0-14) Also called ASE.

**air support liaison team** - A team task organized by the Marine air support squadron to maintain liaison between the direct air support center (DASC) and the fire support coordination center (FSCC). The air support liaison team is not a DASC, but may augment an echelon capability during displacement of the DASC. An air support liaison team may be used to provide a team to the senior FSCC when the DASC is not able to physically collocate with the FSCC because of mobility or communications requirements with other agencies and supporting aircraft. (FMFRP 0-14) Also called ASLT.

**area of operations** - An operational area defined by the joint force commander for land and naval forces. Areas of operation do not typically encompass the entire operational area of the joint force commander, but should be large enough for component commanders to accomplish their missions and protect their forces. (Joint Pub 1-02) Also called AO.

**area of responsibility** - **1.** The geographical area associated with a combatant command within which a combatant commander has authority to plan and conduct operations. **2.** In naval usage, a predefined area of enemy terrain for which supporting ships are responsible for covering by fire on known targets or targets of opportunity and by observation. (Joint Pub 1-02) Also called AOR.

## C

**close air support** - Air action by fixed- and rotary-wing aircraft against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces. (Joint Pub 1-02) Also called CAS.

**combined arms** - The full integration of arms in such a way that in order to counteract one, the enemy must make himself vulnerable to another. (FMFM 1) The tactics, techniques, and procedures employed by a force to integrate firepower and mobility to produce a desired effect upon the enemy. (FMFRP 0-14)



**commander, amphibious task force** - The US Navy officer designated in the initiating directive as commander of the amphibious task force. (Joint Pub 1-02) Also called CATF.

**commander, landing force** - The officer designated in the initiating directive for an amphibious operation to command the landing force. (Joint Pub 1-02) Also called CLF.

## D

**deep air support** - Air action against enemy targets at such a distance from friendly forces that detailed integration of each mission with fire and movement of friendly forces is not required. Deep air support missions are flown on either side of the fire support coordination line; the lack of a requirement for close coordination with the fire and movement of friendly forces is the qualifying factor. (FMFRP 0-14) Also called DAS.

**direct air support** - Air support flown in direct response to a specific request from the supported unit. (FMFRP 0-14)

**direct air support center** - The principal air control agency of the Marine air command and control system responsible for the direction and control of air operations directly supporting the ground combat element. It processes and coordinates requests for immediate air support and coordinates air missions requiring integration with ground forces and other supporting arms. It normally collocates with the senior fire support coordination center within the ground combat element and is subordinate to the tactical air

command center. (FMFRP 0-14, proposed modification to Joint Pub 1-02) Also called DASC.

**direct air support center (airborne)** - An airborne aircraft equipped with the necessary operations and communications facilities, and manned by the essential personnel, to function, in a limited role, as a DASC. (FMFRP 0-14, proposed modification to Joint Pub 1-02) Also called DASC(A).

## E

**emission control** - The selective and controlled use of electromagnetic, acoustic, or other emitters to optimize command and control capabilities while minimizing, for operations security (OPSEC): **a.** detection by enemy sensors; **b.** minimize mutual interference among friendly systems; and/or **c.** execute a military deception plan. (Joint Pub 1-02) Also called EMCON.

## F

**fire support coordination center** - A single location in which are centralized communications facilities and personnel incident to the coordination of all forms of fire support. (Joint Pub 1-02) Also called FSCC.

**fire support coordination line** - A line established by the appropriate land or amphibious force commander to ensure coordination of fire not under the commander's control but which may affect current tactical operations. The fire

support coordination line is used to coordinate fires of air, ground, or sea weapons systems using any type of ammunition against surface targets. The fire support coordination line should follow well-defined terrain features. The establishment of the fire support coordination line must be coordinated with the appropriate tactical air commander and other supporting elements. Supporting elements may attack targets forward of the fire support coordination line without prior coordination with the land or amphibious force commander, provided the attack will not produce adverse effects on or to the rear of the line. Attacks against surface targets behind this line must be coordinated with the appropriate land or amphibious force commander. (Joint Pub 1-02) Also called FSCL.

## H

**helicopter direction center** - In amphibious operations, the primary direct control agency for the helicopter group/unit commander operating under the overall control of the tactical air control center. (Joint Pub 1-02) The helicopter direction center is an agency within the Navy tactical air control system, and is positioned afloat. The helicopter direction center is not a Marine air command and control system agency, but it interacts closely with the direct air support center in the control of helicopter operations between ship and shore. The helicopter direction center also interacts closely with the air support element of the Marine expeditionary unit aviation combat element. (FMFRP 0-14) Also called HDC.

## O

**offensive air support** - Those air operations conducted against enemy installations, facilities, and personnel to directly assist the attainment of MAGTF objectives by the destruction of enemy resources or the isolation of his military force. (FMFRP 0-14) Also called OAS.

## P

**positive control** - A method of airspace control which relies on positive identification, tracking, and direction of aircraft within an airspace, conducted with electronic means by an agency having the authority and responsibility therein. (Joint Pub 1-02) Also the tactical control of aircraft by a designated control unit, whereby the aircraft receives orders affecting its movements which immediately transfer responsibility for the safe navigation of the aircraft to the unit issuing such orders. (FMFRP 0-14 under "Marine air command and control system")

**procedural control** - A method of airspace control which relies on a combination of previously agreed and promulgated orders and procedures. (Joint Pub 1-02)

## R

**rules of engagement** - Directives issued by competent military authority which delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagement with other forces encountered. (Joint Pub 1-02) Also called ROE.

## S

**sector** - An area designated by boundaries within which a unit operates, and for which it is responsible. (Joint Pub 1-02, Part 1 of a 2-part definition)

**supporting arms coordination center** - A single location on board an amphibious command ship in which all communication facilities incident to the coordination of fire support of the artillery, air, and naval gunfire are centralized. This is the naval counterpart to the fire support coordination center utilized by the landing force. (Joint Pub 1-02) Also called SACC.

**suppression of enemy air defenses** - That activity which neutralizes, destroys, or temporarily degrades surface-based enemy air defenses by destructive and/or disruptive means. (Joint Pub 1-02) Also called SEAD.

## T

**tactical air command center** - The principal Marine Corps air command and control agency from which air operations and air defense warning functions are directed. It is the senior agency of the Marine air command and control system which serves as the operational command post of the aviation combat element commander. It provides the facility from which the aviation combat element commander and his

battlestaff plan, supervise, coordinate, and execute all current and future air operations in support of the Marine air-ground task force. The tactical air command center can provide integration, coordination, and direction of joint and combined air operations. (FMFRP 0-14, proposed modification to Joint Pub 1-02) Also called Marine TACC.

**tactical air control center** - The principal air operations installation (land- or ship-based) from which all aircraft and air warning functions of tactical air operations are controlled. (Joint Pub 1-02) Also called Navy TACC.

**tactical air direction center** - An air operations installation under the overall control of the tactical air control center (afloat)/tactical air command center, from which aircraft and air warning service functions of tactical air operations in an area of responsibility are directed. (Joint Pub 1-02) Also called TADC.

**tactical air operations center** - The principal air control agency of the Marine air command and control system responsible for airspace control and management. It provides real time surveillance, direction, positive control, and navigational assistance for friendly aircraft. It performs real time direction and control of all antiair warfare operations, to include manned interceptors and surface-to-air weapons. It is subordinate to the tactical air command center. (FMFRP 0-14, proposed modification to Joint Pub 1-02) Also called TAOC.

**terminal control** - The authority to direct the maneuver of aircraft which are delivering ordnance, passengers, or cargo

to a specific location or target. Terminal control is a type of air control. (FMFRP 0-14 under "Marine air command and control system")

## **U**

**unmanned aerial vehicle** - A powered, aerial vehicle that does not carry a human operator, uses aerodynamic forces to provide vehicle lift, can fly autonomously or be piloted remotely, can be expendable or recoverable, and can carry a lethal or nonlethal payload. Ballistic or semiballistic vehicles, cruise missiles, and artillery projectiles are not considered UAVs. (Joint Pub 1-02)

## **Appendix C**

# **References and Related Publications**

### **Joint Publications**

0-2	Unified Action Armed Forces (UNAAF)
1-02	Department of Defense Dictionary of Military and Associated Terms
3-0	Doctrine for Joint Operations
3-02	Joint Doctrine for Amphibious Operations
3-02.1	Joint Doctrine for Landing Force Operations
3-09	Doctrine for Joint Fire Support (under development)
3-52	Doctrine for Joint Airspace Control in the Combat Zone
3-54	Joint Doctrine for Operations Security
3-55.1	Joint Tactics, Techniques, and Procedures for Unmanned Aerial Vehicles
3-56	Command and Control Doctrine for Joint Operations (to replace Command and Control Planning Guidance and Procedures for Joint Operations)
3-56.1	Command and Control for Joint Air Operations

### **Navy Publication**

. . .From the Sea: Preparing the Naval Service for the 21st Century



**Fleet Marine Force Manuals (FMFMs)**

1	Warfighting
1-7/NWP	Supporting Arms in Amphibious Operations
3-09.11M	
2-7	Fire Support in MAGTF Operations
2-7-1	Fire Support Coordination by MAGTF Com- mand Elements
3-1	Command and Staff Action
3-22-1	UAV Company Operations
3-30	Communications
5-1	Organization and Function of Marine Aviation
5-10	Air Reconnaissance
5-30	Assault Support
5-40	Offensive Air Support
5-41	Close Air Support and Close in Fire Support
5-42	Deep Air Support
5-45	Suppression of Enemy Air Defenses
5-50	Antiair Warfare
5-60	Control of Aircraft and Missiles
5-70	MAGTF Aviation Planning
6-18	Techniques and Procedures for Fire Support Coordination

**Fleet Marine Force Reference Publications (FMFRPs)**

0-14	Marine Corps Supplement to the DOD Dictionary of Military and Associated Terms
5-61	Integrated Combat Airspace Command and Control
5-62	Multiservice Procedures for the Air-Ground System
5-71	Aviation Planning Documents

## **Marine Corps Orders (MCOs)**

P3500.19     Training and Readiness Manual  
3501.9B     Marine Corps Combat Readiness Evaluation System  
                  (MCCRES), Vol VIII

## **Multicommand Manual**

3-1 (S)     Threat Reference Guide and Countertactics  
                  (Volume 2) (U)

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